- 64 -

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OF PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

- 1. A natural resin (NR) characterized by comprising:
 - i) a free phenol content from about 0.001% to about 0.1% (w/w);
 - ii) a total phenolic content from about 35% to about 80% (w/w); and
 - iii) a pleasant smoky odour.
- 2. The NR of claim 1 further characterized by comprising
 - i) a pH from about 2.0 to about 3.0;
- 3. The NR of claim 1, wherein the NR is a liquid NR, characterized by comprising:
 - i) a water content of from about 2 to about 20 wt%;
 - ii) an acids content of from about 0.1 to about 5.0 wt%;
 - iii) an average molecular weight (wet)/(dry) of from about (250-350)/(280-380)

 Daltons,
 - v) a viscosity at 70°C from about 10 to about 130 (cSt); and
 - vi) a pH from about 2.0 to about 5.0.
- 4. The NR of claim 3 further characterized by comprising:
 - i) a net caloric value of about 4355 cal/g (18.22 MJ/kg); and
 - ii) a gross caloric value of about 4690 cal/g (19.62 MJ/kg).
- 5. The NR of claim 1, wherein the NR is a solid NR, characterized by comprising:
 - i) a water content of from about 1 to about 6 wt%;
 - ii) an acids content of from about 0.1 to about 5.0 wt%;
 - iii) an average molecular weight (wet)/(dry) of from about (300-450)/(350-500)

 Daltons;
 - iv) a pH from about 2.0 to about 5.0; and
 - v) which is solid at room temperature.

WO 01/09243 PCT/CA00/00868

- 65 -

- 6. The NR of claim 5 further characterized by comprising:
 - i) a net caloric value of about 4355 cal/g (18.22 MJ/kg); and
 - ii) a gross caloric value of about 4690 cal/g (19.62 MJ/kg).
- 7. A resin composition comprising the NR of claim 1.
- 8. The resin composition of claim 7 wherein said resin is an adhesive resin, and said NR is present within said resin composition from about 1% to about 40% (w/w).
- 9. A resin composition comprising the liquid NR of claim 3.
- 10. A resin composition comprising the liquid NR of claim 5.
- 11. The resin composition of claim 7, comprising a phenol formaldehyde resin, wherein a portion of the formaldehyde of said phenol-containing formaldehyde resin is replaced with NR.
- 12. The adhesive composition of claim 11 wherein NR replaces up to about 50% of said formaldehyde content within said phenol-containing formaldehyde resin.
- 13. The adhesive composition of claim 12 comprising a formaldehyde:phenol ratio from about 1.2:1 to about 3:1.
- 14. The adhesive composition of claim 13 wherein the formaldehyde:phenol ratio is 1.6:1.
- 15. The resin composition of claim 7, comprising a phenol formaldehyde resin, wherein up to about 100% of the phenol content, of said phenol-containing formaldehyde resin is replaced with NR.
- 16. A product prepared using the resin composition of claim 7.

- 66 -

- 17. A product prepared using the resin composition of claim 9.
- 18. A product prepared using the resin composition of claim 10.
- 19. The product of claim 16 comprising, an industrial resin product.
- 20. The product of claim 19, wherein said industrial resin product is selected from the group consisting of laminated wood, plywood, particle board, high density particle board, oriented strand board, medium density fiber board, hardboard or wafer board, mouldings, linings, insulation, foundry resins, asphalt, concrete, brake linings, and grit binders.
- 27. A method of preparing a natural resin (NR) comprising:
 - i) liquefying wood, wood bark or other biomass using fast pyrolysis in order to produce vapours and char;
 - ii) removing said char from said vapours;
 - iii) recovering said vapours to obtain a liquid product; and
 - iv) processing said liquid product using distillation/evaporation to produce said NR.
- 22. The method of claim 21 wherein, said step of recovering comprises obtaining said liquid product from a primary recovery unit, a secondary recovery unit, or both a primary and a secondary recovery unit.
- 23. The method of claim 22 wherein said step of processing comprises pretreating said liquid product prior to said distillation/evaporation.
- 24. The method of claim 23 wherein said pretreating comprises adding water to said liquid product prior to said distillation/evaporation.
- 25. The method of claim 21 wherein said step of processing further comprises adding water to said NR obtained following distillation/evaporation.

PCT/CA00/00868

WO 01/09243

- 67 -

- 26. A natural resin prepared according to the method of claim 21.
- 27. A resin composition comprising the natural resin of claim 26.
- 28. The resin composition of claim 27 wherein said resin composition is an adhesive composition.
- 29. An industrial product prepared using the adhesive composition of claim 28.
- 30. The product of claim 29, wherein said industrial resin product is selected from the group consisting of laminated wood, plywood, particle board, high density particle board, oriented strand board, medium density fiber board, hardboard or wafer board, mouldings, linings, insulation, foundry resins, asphalt, concrete, brake linings, and grit binders.